

and predefined interval may be dynamically changed based on historical data processing and/or user input and may vary as appropriate.

[0059] At step 620, the first radio unit 260 may be reconfigured to provide service for at least one other radio unit 260. In certain embodiments, reconfiguring first radio unit 260 may include disabling the MIMO or CDD configuration in the first radio unit 260. As described above, disabling the MIMO or CDD configuration will free up antenna ports that are not used when first radio unit 260 operates with a single transmitter and receiver. The CDD or MIMO radio ports that were previously used for transmitting in the first radio sector may then be reconfigured to provide service to an antenna units associated with the at least one other radio unit 260.

[0060] At step 625, one or more radio units 210 are disabled and first radio unit 260 is lent to the associated sectors. Because one radio unit 260 may be used to support transmissions in two or more sectors and at least one radio unit 260 can be disabled, substantially energy savings may be realized. In the scenario described above where the radio unit array 210 includes three radio units 260 and first radio unit 260 is reconfigured to support one other cell sector of network node 115, the switch configuration of FIG. 4 may be applicable. Thus, alpha radio unit 405 is reconfigured to support beta antenna unit 445.

[0061] In certain embodiments, the method may continue to step 630. At step 630, it may be determined, at some point after the reconfiguration of first radio unit 260 and disabling of at least one other radio unit, that PRB utilization by the first radio unit is more than a predefined threshold. Radio units 260 that were previously disabled may be enabled again to reduce the load on first radio unit 260. First radio unit 260 may be reconfigured to cease providing service for now enabled radio units 260.

[0062] Though alpha radio unit 405 is described as being reconfigured to support beta sector 420 with regard to FIG. 6, certain embodiments may result in alpha radio unit 405 being reconfigured to support gamma sector 430 instead. FIG. 7 is a switch diagram illustrating an alternative example radio unit array 700 configured for operation in a resource sharing mode. Similar to radio unit array 300 and radio unit array 400 depicted in FIGS. 3 and 4, respectively, radio unit array 700 includes three radio units associated with three distinct cell sectors. Specifically, alpha radio unit 705 is associated with alpha sector 710, beta radio unit 715 is associated with beta sector 720, and gamma radio unit 725 is associated with gamma sector 730. In the depicted embodiment, gamma radio unit 725 is not active, and each radio unit 705, 715, and 725 has the switch position set to the fourth position 735.

[0063] Transition of the switch from the first position associated with the normal mode of operation to the fourth position 735 associated with a resource sharing mode may be achieved either mechanically, electro mechanically, and/or electronically and may result in switching of link points between the radio units and the antennas. For example, in the depicted embodiment, alpha radio unit 705 remains linked to antenna alpha unit 740 to support the transmission of signals via alpha antenna unit 705 and beta radio unit 715 remains linked to beta antenna unit 745 to support the transmission of signals via beta antenna unit 745. However, gamma radio unit 725 is disabled, and link points between alpha radio unit 705 and gamma antenna unit 750 are enabled. As a result, alpha radio unit 705 is capable of supporting transmissions to wireless devices 110 in both alpha sector 710 via antenna unit 740

and gamma sector 730 via gamma antenna unit 750. Because a radio unit is disabled, radio unit array 700 may result in substantial energy savings over a radio unit array operating in the normal mode of operation described above.

[0064] In still other embodiments, even further energy savings may be realized where a radio unit is reconfigured to support every cell sector of network node 115 and every other radio unit may be disabled. To operate in this manner, the switch configuration is adapted. FIG. 8 illustrates another alternative example radio unit array 800 configured for operation in a resource sharing mode that results in maximized energy savings. Similar to radio unit arrays 300, 400, and 700 illustrated in FIGS. 3, 4, and 7, respectively, radio unit array 800 includes three radio units associated with three distinct cell sectors. Specifically, alpha radio unit 805 is associated with alpha sector 810, beta radio unit 815 is associated with beta sector 820, and gamma radio unit 825 is associated with gamma sector 830. In the depicted embodiment, beta and gamma radio units 815 and 825 are not active, and each radio unit 805, 815, and 825 has the switch position set to the second position 835.

[0065] Transition of the switch from the first position associated with the normal mode of operation to the second position 835 associated with a resource sharing mode may be achieved either mechanically, electro mechanically, and/or electronically and may result in switching of link points between the radio units and the antennas. For example, in the depicted embodiment, alpha radio unit 805 remains linked to alpha antenna unit 840 to support the transmission of signals via alpha antenna unit 840. However, beta radio unit 815 and gamma radio unit 825 are disabled. Link points between alpha radio unit 805 and gamma antenna unit 850 are enabled. Likewise, link points between alpha radio unit 805 and beta antenna unit 845 are enabled. As a result, alpha radio unit 805 is able to support transmissions to wireless devices 110 in both in all three sectors. Because the beta and gamma radio units 815 and 825 are disabled, radio unit array 800 may result in the greatest energy savings.

[0066] Though the switch configuration of FIG. 8 is appropriate where it is determined cell sector loading in all cell sectors can be accommodated by a single radio unit 260, it is equally appropriate where all but one radio unit 260 in a network node 115 have failed. Where the radio unit load satisfies certain user defined threshold conditions and desired Quality of Service levels may be maintained.

[0067] FIG. 9 is a flow chart illustrating another example embodiment of an alternative method for reducing power consumption by sharing resources in a network node. The method begins at step 905 when it is determined whether all radio units are active. If not at all radio units are active, it may then be determined at step 910 whether any of the radio units 260 have failed and cell coverage has been lost. If a radio unit has failed, it may be determined whether any non-failing radio units 260 are operating with a MIMO or CDD configuration at step 915.

[0068] If at least one radio unit 260 is operating with a MIMO or CDD configuration, it may be determined at step 920 whether specific user-defined QCI sessions in the radio unit that is operating in the MIMO or CDD configuration is less than a predefined threshold. Additionally, it may be determined whether or not the radio unit 260 operating with a MIMO or CDD configuration is handling any emergency calls. If step 920 is answered negatively, the determination of step 920 may be repeated until it is affirmatively answered.